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MARINE FORAMINIFERA
LABORATORY

Quarterly Progress Report

1 March 1953 to
31 May 1953.

Office of Naval Research
Project NR-081-050
Contract/Nonr-233 Task I ✓

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SIO-Ref-53-39
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Approved for distribution:

Roger Revelle
Roger Revelle, Director

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1. A manuscript was completed on Foraminifera populations in the eastern Mississippi Delta area. The summary of this paper is as follows:
 - a. The Foraminifera are grouped into a marsh facies, a Breton Sound facies, an open-gulf facies, and an offshore subfacies.
 - b. Facies transition areas:
 - i. The average boundary between the open-gulf and Breton Sound facies extends south from Breton Island to Main Pass. There is mixing of many typical open-gulf and Breton Sound species through a zone 10-15 miles wide extending on either side of this boundary.
 - ii. The bays and other nearshore areas contain a Breton Sound fauna mixed with marsh species.
 - c. Living populations:
 - i. Distribution of the living populations of the various species seems to show good correlation with the distribution of the dead population.
 - ii. The total living population varies from 1116/sample to 0/sample. The northernmost area generally has the smallest standing crop of Foraminifera, approximately 100/sample, and the largest living populations occur at the inshore open-gulf stations.
 - iii. The ratio between living and total populations are grouped into four types of frequency areas. These show a general correlation with presumed sedimentation rates.
 - d. It is believed that the distribution of the Foraminifera facies in this east delta area reflects the average distributions of the open-gulf, Breton Sound, and marsh-river water masses.
2. A manuscript on the Foraminifera populations from the Mississippi Sound area has been prepared for publication. The summary of this paper is as follows:
 - a. Foraminifera and associated microorganisms have been studied from approximately 400 surface sediment samples in Mississippi Sound, the marsh and estuaries on the adjacent mainland, the barrier sand islands bounding Mississippi Sound on the south, and the open gulf outside the barrier islands.
 - b. The following facies are recognized: the open-gulf facies outside the barrier islands, the sound facies, the estuary facies, and the marsh facies.
 - c. The following subdivisions of these facies are recognized: nearshore barrier island faunas, barrier island lake faunas, inner-marsh faunas.
 - d. There is mixing of faunas as follows:
 - i. The open-gulf fauna occurs inside inlets between barrier islands and at some places behind the islands, where there is mixing with the sound fauna.

- ii. The most abundant marsh and estuary species is mixed with the sound fauna near marsh areas, principally near the mainland.
 - iii. Marsh species occur in the estuary faunas and are most abundant where the estuaries are narrow.
 - e. The contrast between the open-gulf and the sound faunas is believed to be caused by the islands acting as a barrier to invasion of the open-gulf water mass into the sound. This is aided by high runoff into Mississippi Sound. The presence of open-gulf faunas in the sound suggests the routes of invasion of open-gulf water masses along the bottom. Distribution of sound faunas in the open gulf probably reflect average hydrographic conditions.
3. Population analyses have been made of fifty additional samples from the offshore eastern Gulf of Mexico. Two hundred photographs have been prepared for final illustration, and distribution tables have been made and are being analyzed.
4. Studies of planktonic Foraminifera from Pacific plankton tows:
- a. Planktonic Foraminifera have been segregated from an additional 114 microplankton samples collected from the eastern Pacific by SIO "Shellback Expedition" and NEL "Expedition Shuttle" during the summer of 1952.
 - b. Work has progressed in examination of populations collected near the California coast. Plankton collections have been made at bimonthly intervals at 4 stations to determine the seasonal distributions.
5. Progress has been made on a detailed Foraminifera population and sediment distribution study of Todos Santos Bay, California. The purposes of the study, which is nearing completion, are as follows: relationships of Foraminifera to temperature, depth, sediment; significance of annual variations and standing crop of living populations; definition of relative rates of sedimentation; and a detailed temperature survey of the area.

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